FLEETWOOD

Electronic Interactivity— the Ultimate feedback mechanism

USER MANUAL

Reply®

Applies To:

- **Keypad, Model CRS5200**

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Rev	Date	Description
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B	**04/02/08**	**Remove old driver install**
C	**04/29/08**	**Updated Format and Certification Info**

Table of Contents

1.0 REPLY® SYSTEMS 1

1.1 INTRODUCTION 1
1.2 APPLICATIONS/ADVANTAGES 1
1.3 RF COMMUNICATION 1
1.4 TECHNOLOGY LEADERSHIP, PATENT PROTECTION, AND CERTIFICATION 1
1.5 OTHER FLEETWOOD GROUP, INC. PRODUCTS 1

2.0 PRINCIPLES OF OPERATION 2

3.0 SYSTEM DESCRIPTION AND SETUP 2

3.1 ROOM LAYOUT 2
3.2 PLACEMENT OF THE REPLY® SYSTEM 2

4.0 HOW TO USE THE CRS5200 3

4.1 SOFTKEYS 4
4.2 CHANGE/CHECK KEYPAD ADDRESS 4
4.3 CHANGE/CHECK KEYPAD CHANNEL NUMBER 5

5.0 6

5.1 KEYPAD OPTION COMMANDS 6

6.0 OPTION COMMAND TABLE 6

7.0 KEYPAD BATTERY REPLACEMENT 7

8.0 SOFTWARE 7

9.0 ACCESSORIES 7

10.0 LIMITED PRODUCT WARRANTY 8

11.0 FCC, IC, AND EU COMPLIANCE INFORMATION 9

11.1 STANDARDS AND GUIDELINES 9
11.2 FCC/IC COMPLIANCE 9
11.3 EU COMPLIANCE 9

12.0 TECHNICAL SPECIFICATIONS 10

12.1 KEYPAD 10

13.0 TROUBLESHOOTING PROCEDURES 11

1.0 Reply® Systems

1.1 Introduction

This product consists of wireless (RF) keypads and a Base Station. The system is generally used to record answers to multiple choice questions as part of a classroom presentation, decision-making session, focus group, or videoconference. It offers methods for collecting and immediately reporting group response data. Reply® systems have been available for several years and have been sold in over 50 countries worldwide.

Reply® is a cordless handheld response system that provides numeric data interaction for meeting or learning environments. Keypad responses are transmitted to the Base Station, which processes and delivers the information to the attached computer.

Application software operates the Base Station and controls its associated Keypads. While the system's hardware may offer powerful features, application software is the essential ingredient in applying the technology to generate useful results.

1.2 Applications/Advantages

Many meeting and learning venues require a mechanism for audience interaction. Moreover, many seek a method of automating surveys and grading activities. Reply® meets the need for such an interactive tool, bringing everyone together and instantly allowing measurement of interest, understanding, and involvement.

- Audience members can participate from their seat and personally indicate their opinions, ideas, and knowledge.
- Results of the interaction are immediately available, and their display offers presenters a valuable insight into the opinion and comprehension level of audience members.
- System setup typically involves handing a Keypad to every participant and connecting the Base Station to a computer. No Keypad wires or cabling need be installed prior to use. This allows fast, reliable, safe, and attractive installation.

1.3 RF Communication

The Keypads communicate with the Base Station using wireless Radio Frequency (RF) technologies. The patented proprietary design has been rigorously tested and optimized for reliability and collection speed.

1.4 Technology Leadership, Patent Protection, and Certification

Fleetwood Group, Inc. maintains a leadership position in wireless development of audience response solutions. United States Patents 5,093,786, Re. 35,449 and other patents reflect the commitment to wireless technology leadership and the unique position that Fleetwood Group, Inc. brings to the market. Additional United States and foreign patents are pending.

Fleetwood Group, Inc. also maintains a commitment to complying with the United States Federal Communications Commission and various foreign regulatory requirements. Others are continuously being added. Please contact your reseller or Fleetwood Group, Inc. for more information on certification.

1.5 Other Fleetwood Group, Inc. Products

Fleetwood Group, Inc. is a manufacturer of quality electronic products that are sold through a worldwide reseller network. All Reply® products are designed and manufactured in Holland, Michigan.

For more information on these products or our customization capability, please visit our website at www.replysystems.com.

2.0 Principles of Operation

This Reply® System uses the latest in 2.4 GHz wireless technology to turn any meeting into a dynamic interactive experience for each participant without having to deal with a nightmare of cables and connectors.

Fleetwood is unique in the marketplace with its patented technology to provide a two-way link with the keypads. This design ensures that no responses are missed by requiring a keypad to retransmit the user's response until it is properly received by the Base Station. The design also allows the system to refuse to acknowledge any invalid entries. This is clearly superior to other technologies using one-way radio or infrared, which do not provide acknowledgment to the keypad when its entry is received and do not have any way of rejecting invalid entries.

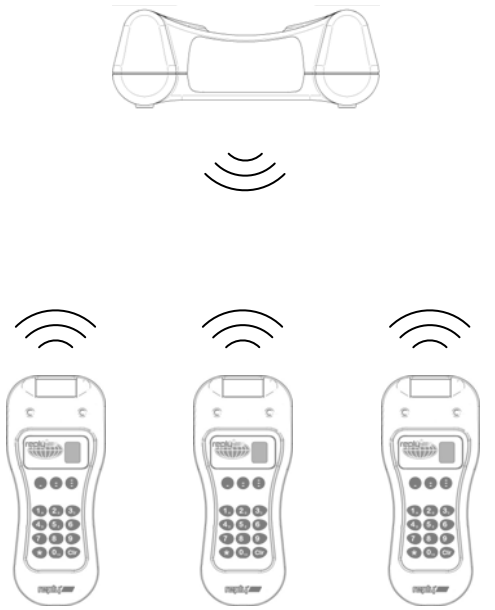


Figure 1. System Diagram

The Base Station is the control center for the system and operates according to commands issued by the application software. The Base Station can be set to any of the 15 available channels through the software. Each Base Station can process responses from up to 250 keypads.

A radio frequency packet is continuously sent out by the base station when the unit is powered on. Each base station's packet can only be received by keypads that have been set to the same channel.

3.0 System Description and Setup

3.1 Room Layout

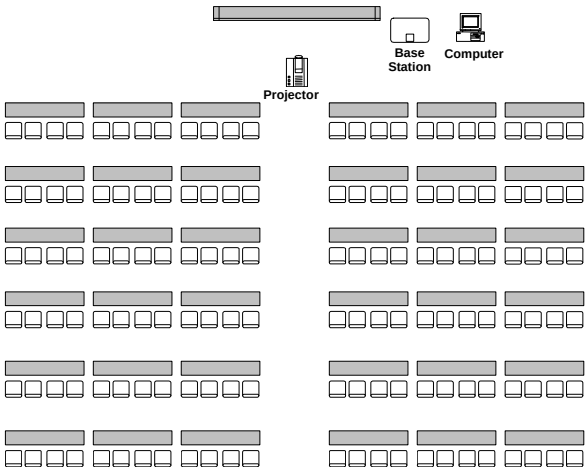


Figure 2. Typical Room Layout

3.2 Placement of the Reply® System

The Base Station can be located anywhere in the area where the keypads are to be used. The CRS5200 can operate in a room up to 450' x 450' (140m x 140m) in size. Despite a robust communication system, walls and some other 2.4 GHz devices can moderately to severely limit the system's overall performance. If coverage of a larger area is necessary, elevation of the Base Station or centering in room can usually improve the reception of the keypad signals.

NOTE: Due to the properties of signals operating at 2.4 GHz, Fleetwood does not recommend placing any walls between the base station and the keypads. The material in a wall tends to absorb the RF signal and some reduced performance might be observed.

4.0 How to Use the CRS5200

Figure 3. CRS5200 Keypad

After the Base Station is turned on, pass out the keypads to the meeting participants and demonstrate how the keypad works. Ask each person to press a numeric key on his or her keypad and observe what happens. When a key on the keypad is pressed, a single digit display will indicate which key was activated.

The digit keys (1 through 10) are used to enter numeric responses, including multiple choice questions (A through E) or yes/no answers, into keypad memory. The key must be released to allow the next key press to occur. Entries are transmitted to the Base Station, which is then transmitted to the computer via the provided serial cabling. As keys are pressed, the digits are echoed on the seven-segment display (SSD).

During normal operation, the displayed digit will go out within 3 seconds. This indicates to the user that the Base Station has accepted the entry and the hardware is operational.

If the light blinks and comes back on, this means that the Base Station addressed the keypad but was not able to accept the entry. This could mean one of a few things:

- An invalid choice was made. (Some software packages use a key masking function that rejects entries from certain keys. For example, keys #3 – 9 and 0 may be marked as invalid answers and keys #1 - 2 as valid answers to a Yes/No question.) The participant should press the "Clear" key and enter a new valid answer.

  To clear a response, the CLEAR key must be pressed and released before the Reply® Base Station receives the keypad transmission. Depending on the number of keypads being scanned, this may take 0.5 second (< 50 keypads) to 2.5 seconds (> 200 keypads). While the "Clear" key is depressed, the keypad will display the letter **C** on the SSD.

Figure 1-A

- The keypad is out of range of the Base Station. Try moving the keypad closer to the base. An out of range keypad's LED indicator will wink approximately every 2.5 seconds (with 250 keypads polling).
- If the LED indicator on one keypad stays on and never blinks while other keypads are working, check the address and channel of the keypad. If everything appears to be set correctly, then the pad might need factory repair.

There is also a low battery detect circuit built into the keypad to notify the user when the battery is getting low and needs replacement. This causes the LED indicator to flash at a high rate (several times per second) when the battery is getting low and should be replaced. There will, however, still be several hours of usage left in the battery, allowing use of the keypad until the meeting is completed.

4.1 Softkeys

CRS5200 Softkeys

A new feature for the CRS5200 keypad is the addition of 3 "Softkeys". If enabled, these keys can be used as 3 extra general purpose response buttons for non-numeric responses.

4.2 Change/Check Keypad Address

Model CRS5200 keypads have a mode that allows the user to change or recall the current keypad address. There are two methods for accessing this mode:

- Enter code 951 (See Appendix A for how to enter 9XX codes).
- Press and hold "Clr" and press "1". Then release both keys. This feature may be disabled from a previous base command. If it is disabled, use the 951 code listed above.

Once one of the above actions has been performed, the two lower horizontal segments will light on the keypad. At this point, you have 5 seconds to do one of the following actions:

- To recall the current address, press the "*" key. The address will blink out on the display (001 – 250).
- To set a new address, simply type in the new 3-digit address (i.e. "0"-"0"-"1" = address 1, and "2"-"5"-"0" = address 250).

If the address was changed, the keypad will use this new address on the next keypress.

4.3 Change/Check Keypad Channel Number

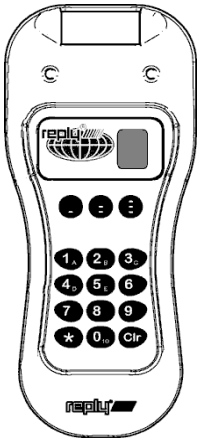
The CRS5200 keypads contain a mode that allows the user to recall or change the current channel. There are two different methods of accessing this mode:

- Enter code 973 (See Appendix A for how to enter 9XX codes).
- Press and hold "Clr" and press "2". Then release both keys. This feature may be disabled from a previous base command. If it is disabled, use the 973 code listed above.

Once one of the above actions has been performed, the two lower horizontal segments will light on the keypad. At this point, you have 5 seconds to do one of the following actions:

- To recall the current channel, press the "*" key. The channel will blink out on the display (01 – 15).
- To set a new channel, simply type in the new 2-digit address (i.e. "0"-"1" = channel 1, and "1"-"5" = channel 15).

If the channel was changed, the keypad will use this new channel on the next keypress.



5.0

5.1 Keypad Option Commands

Entering option commands is identical to entering a new Channel Number. All option commands start with the digit "**9**". See Table 1 for the list of available options (Also listed in Appendix A).

For a more descriptive explanation of these Option Commands, please call Fleetwood Product Service (888) 467-3759.

6.0 Option Command Table

Code	Description
910	Display the key that was pressed.*
911	Display a secure character ("-") instead of the key that was pressed. The actual key pressed will still be sent.
920	Disable post acknowledge*
921-929	Enable post acknowledge for 1-9 seconds
930	Disable the "*" key.
931	Enable the "*" key.*
940	Disable sending low battery message.
941	Enable sending low battery message (A "?" is sent after each response if the battery is low)*
951	Setup the keypad's address.
952	Disable the C-1 and C-2 shortcut keys.
953	Enable the C-1 and C-2 shortcut keys.*
960	Display the keypad's 6 digit serial number (in Hex)
970	Display the keypad's firmware revision
973	Setup the keypad's channel.
980	Reset EEPROM to default settings.
983	Disable key lockout (Any key can be pressed at any time).*
984	Enable key lockout (Only the first key is accepted until an acknowledge is received).

Option Commands (* = default)

7.0 Keypad Battery Replacement

Each keypad is powered from 2 x "AA" batteries. Fleetwood recommends using alkaline batteries. Rechargeable NiCad batteries will work but may need to be replaced more frequently. In order to recharge NiCad batteries, a third party charger must be used since the keypads are not rechargeable. One fresh set of alkaline batteries can last for up to 150 hours of use.

8.0 Software

Off-the-shelf software packages are available for Reply®. These packages are available through Fleetwood's network of qualified dealer-developers. Most Reply®. compliant software applications require the Windows operating system (trademark Microsoft Corporation).
Contact Fleetwood for details on the software applications that are certified for use with Reply® products.

9.0 Accessories

Call Fleetwood or an authorized dealer for information on available storage/shipping cases, extra cables or power supply kits.

10.0 Limited Product Warranty

Fleetwood Group, Inc. warrants its Reply® Wireless Response System components for a period of 24 months from the date of manufacture for any material or workmanship defect in the product. This warranty does not extend to batteries or any product component, which has been subjected to misuse, neglect, accidental breakage, improper installation, use outside of present guidelines, or alteration outside of our factory.

Reply® Base Stations and Keypads use internal antennas built directly on the printed circuit board. Modifying the antennas in any way will result in reduced range and will void the warranty.

There are no user serviceable parts inside Reply® Base Stations or Keypads.

Fleetwood Group, Inc. agrees to remedy, at the factory, any product defect, or at its discretion, replace any component or part of the product provided the owner complies with the following procedures:

1) The owner is to determine that the problem is not the battery or a faulty or improper connection with the personal computer or power source.

The owner will contact our Product Service Coordinator during standard hours Monday through Thursday 7:00 AM to 3:30 PM and Friday 6:00 AM to 12:00 PM Eastern Standard Time at

1-888-GO REPLY (467-3759)

or

www.replysystems.com/rma/

to obtain a Return Material Authorization (RMA) number prior to shipping the product back to the factory.

2) The owner will send the defective component via prepaid freight to:

Fleetwood Group, Inc.
Electronics Division
Product Service Coordinator
RMA#:
11832 James Street
Holland, MI 49424

3) If the factory determines the defect is due to negligence or oversight on the part of the owner, the owner will be invoiced for the cost of the repair.

11.0 FCC, IC, and EU Compliance Information

CRS5200 Reply® Keypad
Responsible Party Pertaining to the Declaration of Conformity

Fleetwood Group, Inc.
11832 James Street
Holland, MI 49424
Attn: Product Service Coordinator
Phone: 888-467-3759

11.1 Standards and Guidelines

This device complies with the following European Directives and USA/Canada Regulations:

- Directive 1999/5/EC on radio equipment and telecommunication terminal equipment and the mutual recognition of their conformity
- LVD 73/23 EEC, EMC 89/366 EEC
- The USA Federal Communications Commission (FCC) Rules and Regulations
- Industry Canada Rules and Regulations

This device complies with the following national and international standards:

- ETSI EN 300 328:2004
- ETSI EN 489-1,2,3:2003
- EN55022:1998
- EN55024:1998 w. A1:2000, A2:2003
- EN60590:2000

11.2 FCC/IC Compliance

This device complies with Part 15 of the FCC Rules and RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions: (1) this device may not cause interference and (2) this device must accept any interference, including interference that may cause undesired operation of the device. The user is cautioned that changes or modifications to the device that are not approved by the manufacturer could void the user's authority to operate the device.

11.3 EU Compliance

This device is a 2.4 GHz low power response system controller intended for residential and commercial use in all EU and EFTA member states.

CE

Notice

The base and keypad units may be susceptible to *E*lectro*s*tatic *D*ischarge (ESD) and other similar fast transient events causing system interruption. Should system interruption occur, reboot computer, reset base unit by disconnecting and reconnecting USB cable and push any key on keypads which have powered down.

12.0 Technical Specifications

12.1 Keypad

Enclosure

Symbol	Parameter	Value			Unit
		Min	Typ	Max	
d_l	Length	-	5.25	-	in. (mm)
d_w	Width	-	2.10	-	in. (mm)
d_h	Height (Thickness)	-	1.10	-	in. (mm)
w_b	Weight With Batteries Without Batteries		 0.290 0.185	 - -	lbs

Power

Symbol	Parameter	Value			Unit
		Min	Typ	Max	
V_{DD}	Voltage	2.2	-	3.6	V
V_{lvw}	Low Voltage Warning (flashing icon)		2.2		V
V_{lvs}	Low Voltage Shutdown		1.9		V

13.0 Troubleshooting Procedures

ISSUE	POSSIBLE CAUSE	SOLUTION
Keypad Battery Life is short	Non-alkaline batteries were used.	IRechargeable batteries offer the ability or reuse but may have a shorter run time than alkaline batteries.
Keypad does not turn on	Batteries may be inserted backwards. Batteries are dead.	Pull the batteries out and check the orientation symbols in the bottom of the battery cavity. Replace the batteries.
Poor RF Performance	Base not in open area. Base located too close to other electronic equipment More than one base unit on the same Base ID WiFi RF Interference Other Interference Multiple Base Stations are too close	Do not place the base inside cabinets. Place the base away from other electronic devices, such as TV's, DVD/VCR players and similar. Check that the bases covering an area are not on the same Base ID. Verify the WiFi avoidance settings are set correctly in the software. See your network administrator for channel settings. Always physically separate other radio devices by at least 10' (3 m). This includes WiFi, Bluetooth, ZigBee and other similar devices. Keep base stations separated and do not stack units.
Short range with keypads	Power level setting too low. Interference	Check that the power level setting of the system is appropriate for the range trying to be achieved (Some countries have restrictions as to the power level setting allowed. See Section 11.0). See "Poor RF Performance".
Keypad vote not sending	Base ID in the keypad and base are not matched.	Change either the keypad or base so they match.